

THE RESPONSE OF EARLY AMBONESE FORAGERS TO THE MALUKU SPICE TRADE: THE ARCHAEOLOGICAL EVIDENCE

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Introduction

Discussion of the effects of European contact and the spice trade on the peoples of the Indonesian Archipelago (cf. Meilink-Roelofs 1962, Van Leur 1955) has a long tradition in anthropology and history. Special attention has been given to the province of Maluku, arguably the most affected region. There is historical evidence of major structural changes in Malukan society from the time of initial contact with the islands of Ternate and Tidore to the incorporation of the region's trade centers into the world economic system (Abdurachman 1978, Andaya 1993, Ellen 1979, Ellen 1987, Villiers 1981, Wright 1958). Despite early accounts written by travelers, naturalists, and officials who lived in the region (cf. Bickmore 1868, Dampier 1708, Forbes 1885, Forrest 1779, Merrill 1917, Wallace 1869), there is a paucity of information covering Maluku before the 16th century.

In this study, we would like to address this period of time in relation to archaeological evidence from excavations carried out on the island of Ambon. Instead of providing a simple description of the recovered data, we would like to use the available evidence to address a key issue in the study of Maluku society. What was the nature of the early Maluku economy before the time of European contact, and what were the effects of contact and the subsequent development of the spice trade on the local economies of the indigenous peoples?

To address this issue, we compare the archaeological data from the Batususu Rockshelter on the island of Ambon to Ellen's (1979) model of the "Elementary Moluccan Subsistence Unit." Ellen's model addresses the effects of the spice trade on the exchange of sago and other local

foodstuffs. In the following analysis, we attempt to demonstrate that the archaeological data from the Batususu Rockshelter support many aspects of Ellen's model.

Two issues that have not yet been addressed in Maluku research literature are discussed in relation to current analyses. First, there is a greater emphasis on the harvesting of *Canarium* nut species (likely a significant contribution to early diets), at least in the Batususu locality of northwestern Ambon, than is mentioned in previous accounts. Second, there appears to be very little change in the organization of economic practices of the peoples who frequented the Batususu site from pre-contact times to the early postcontact period (roughly A.D. 1100 to the middle of the 17th century).

The Elementary Moluccan Subsistence Unit

The most complete and dynamic model used to describe the early Maluku economy remains Ellen's (1979) discussion of the Elementary Moluccan Subsistence Unit. Ellen's model, which is based on historic evidence as well as ethnographic data from his fieldwork among the Nuaulu of Seram, states that the Elementary Moluccan Subsistence Unit was focused primarily on the extraction of sago palm (*Metroxylon sago*), and hunting and gathering (Ellen 1979: 50–52; 1988: 118–122). More specifically, the Elementary Moluccan Subsistence Unit consists of a critical dependence on sago as a carbohydrate source and minimal use of domesticated resources (Ellen 1975: 53; 1979: 52; 1988: 119). This system is also characterized by minimal reliance on outside communities for food and materials, so that most communities were relatively self-sufficient and there was likely minimal production of excess goods for exchange. Subsistence was based on relatively simple techniques of production, and social relations of production were realized through the ties of kinship, affinity, and locality (Ellen 1979: 52).

Many researchers have discussed the importance of sago palm among foraging groups throughout Melanesia and Island Southeast Asia (cf. Barrau 1959, Brosius 1991, Rhoads 1982, Ruddle et al. 1978, Townsend 1971). Specialists in this area suggest that sago palm is a reliable, easily propagated, and easily processed food source that allows for a greater degree of sedentism¹ and organizational flexibility than that found in other resource acquisition strategies (Dwyer & Minnegal 1991, Ellen 1988: 116, Townsend 1971). The sago palm represents a low mainte-

nance food source suitable for successful human exploitation and highly adaptable under human selection and management.

Ellen suggests that the properties of *Metroxylon sago* as a subsistence resource are intimately linked to fluctuation and expansion in the spice trade over the course of several hundred years (Ellen 1979: 44). Ellen argues that the Elementary Moluccan Subsistence Unit was progressively drawn into increasingly wider exchange systems, and then into larger and more complex modes of production and systems of total production (Ellen 1979: 44). For convenience, Ellen divides this process into four phases: the Early, Formative, Mature, and Late Exchange Phases.

The Early Exchange Phase

Ellen's Early Exchange Phase is dominated by simple relations of production associated with the Elementary Moluccan Subsistence Unit. During this time period, small amounts of spices are collected and exchanged for a variety of material items, particularly valuables, but usually excluding food products. This process steadily accelerates toward the end of the phase as external demand for spices and internal requirements for the valuables of traditional local exchanges both increase (Ellen 1979: 44).

The Formative Exchange Phase

The Formative Exchange Phase is recognized by an upswing in the level of production and the full domestication of spice trees. Trade becomes of increasing political significance to both producers and traders. During this phase, control of the growing volume of commodities by individuals and small kinship groups forms a growth point for class differentiation. Finally, the process is amplified through external support for indigenous rulers through whose hands the trade passes.

The Mature Exchange Phase

Ellen's Mature Exchange Phase is marked by further increase in the scale of cultivation and growth in the local trade of foodstuffs, particularly sago, along traditional communication routes into areas hitherto self-sufficient. In this way, further Elementary Moluccan Subsistence Units are drawn into the trade system.

During the Mature Phase, there is corresponding growth in the population of spice-producing areas. Growth continues in spice production, local trade in food staples, and the human population. Ellen argues that

the pattern is consolidated and communities are drawn into a global exchange sphere of which they are a quasi-dependent element.

Ellen argues that this phase is characterized by two self-amplifying loops of dependence. First, increasing area devoted to production for exchange leads first to more intensive use of available land for subsistence crops, but later to a net increase in land available and in output of production for use. This leads to more reliance on production for exchange and consequently to further expansion of production activities in this sector. Second, as more time and labor are devoted to cultivation for exchange, there is a drop in subsistence production. As a result, more land and human effort are devoted to production for regional trade than for local subsistence.

Ellen argues that subsistence on sago delayed the Maluku people's dependence on external trade by preventing immediate depletion of arable land, rapid deforestation, and competition over land between subsistence and trade crops. In other words, local depletion of resources in particular areas was offset by local trade in sago along traditional pathways.

However, it was European intervention and the introduction of full-scale trade in relation to capitalism that broke this traditional trading network. This intervention increased the speed of change in the direction of greater dependency, resulting in chronic ecological instability. According to Ellen, it was during the latter part of the Mature Exchange Phase that the Malukan peoples became more dependent on external trade due to depleted resources and a decline in local subsistence production.

The Late Exchange Phase

The Late Exchange Phase is characterized by a rapid decline in the trading of spices in the context of artificial control of spice production and trade. Local trading resumed, alleviating to some degree the problems of unequal resource distribution. Finally, the system becomes a relatively stable but deteriorating combination of dependency and self-sufficiency until the middle of the 19th century (Ellen 1979: 47).

Although Ellen's elaborate model is supported by historical and ethnographic data, additional issues remain that are difficult to address due to lack of evidence. First, what chronological dates may we attach to Ellen's four phases—in particular, the beginning of the Early and Formative Phases? Second, what characterized the early Maluku economy before Ellen's Early Exchange Phase? In other words, was there a different

form of prehistoric economy before the Elementary Moluccan Subsistence Unit? Third, what role, if any, was played by indigenous foraging peoples in interior locations away from the coastal trading centers? Finally, what effects did the development of the spice trade have on the foraging strategies of indigenous peoples in Maluku.

In the remainder of this work, we will attempt to address these three questions through historic and archaeological evidence from the Batususu Rockshelter in northeastern Ambon. In the following section, we will discuss some historical evidence concerning the role played by indigenous foragers in Ellen's Elementary Moluccan Subsistence Unit. We also compare Ellen's model of economic change with data collected from the Batususu Rockshelter on Ambon Island.

Due to the period of human use represented at the Rockshelter, based on radiocarbon dates shown in Table 1 (roughly A.D. 1100 to 1650), we are able to relate the archaeological evidence to only the first two phases of Ellen's model. Obviously, the latter phases indicate complex social and economic developments that occurred later than the period represented at the Batususu Rockshelter.

Table 1. Radiocarbon dates from Batususu Rockshelter, Ambon

LAB NO.	LAYER	DATE	CALENDRIAL DATE
Beta-73696	2	320±70 B.P.	A.D. 1630±70 years
Beta-73694	3	350±50 B.P.	A.D. 1600±50 years
Beta-73695	4	170±50 B.P.	A.D. 1780±50 years
Beta-73693	4	780±60 B.P.	A.D. 1170±60 years

Early Malukan foragers and the spice trade

Information collected from historical and ethnographic accounts indicates that the indigenous foragers in the early economy of Maluku can be seen to play three roles: (1) as providers, (2) as traders, and (3) as political subordinates.

Malukan foragers as providers

There is evidence that indigenous foragers in Maluku played a key role in providing subsistence items not only to coastal trading centers, but also to local rulers engaged in extensive trade networks. Andaya notes that the indigenous Alifuru peoples of Halmahera were crucial to the success of the local exchange system. The Halmahera Alifuru were regarded

as having a special relationship with the rulers of nearby islands (Andaya 1993: 65). The Sultans of Ternate and Tidore controlled tracts of land along the coast of Halmahera. The soils within these areas were said to be poor and “neither worked, nor turned, nor harrowed for lack of iron and of animals (Andaya 1993: 65).” These fields were tilled by the Ali-furu, who provided the rulers’ sago bread, meat, palm wine, fish, areca, betel, and all other needs, including spoons, firewood, and water. Most important, they were responsible for harvesting the cloves in the ruler’s lands.

In addition to providing foodstuffs and other resources to rulers, indigenous foragers also provided supplies for coastal trade centers that devoted almost all their available lands to spice trees (Ellen 1979: 59, Hanna & Alwi 1990: 157). Hutterer (1977) notes that as forest products were located outside the effective control of coastal centers throughout Island Southeast Asia, these centers had to enter into exchange relations with foragers and swiddeners of the interior.

The island of Ambon provides a good example of indigenous peoples supplying local trade centers. After the dominance of the rulers in Ternate and Tidore, the Muslim village of Hitu became the new epicenter for the spice trade. In fact Hitu became one of Maluku’s major political and market centers during the mid 17th century.

Hitu, located on the northwest of Ambon, had a population of about 25,000 persons in widely scattered coastal villages (Hanna & Alwi 1990: 155). Due to its growing population, Hitu was forced to import food from the surrounding countryside of Ambon and the neighboring island of Seram (Ellen 1979: 62). Sago was imported from Seram to Ambon-Lease along traditional trading routes, facilitated by interisland links between villages tied by relations of mutual exchange and cooperation. Thus, evidence supports the claim that indigenous foraging peoples throughout Maluku played a key role as providers for the growing political and trade centers on the islands of Ternate, Tidore, and Ambon.

Malukan foragers as traders

In addition to playing the role of providers, historical evidence also suggests that indigenous Malukan foragers were accomplished traders. Ellen argues that while large coastal areas were incorporated into trade networks, interior areas of large islands such as Seram and Buru were relatively unintegrated through trade (Ellen 1987: 45). Although these

isolated interior populations were the least dependent on local trade networks, they still engaged in various trade relations with coastal communities.

Elmberg (1968: 132) notes that during the 19th century, and probably much earlier, inland Alifuru foragers on the islands of Buru and Seram negotiated what were called *pusaka* and *harta* with the sparse Muslim populations living in coastal villages. The *pusaka* and *harta* represented goods that served as sacred heirlooms and objects of ceremonial exchange—primarily, highly valued Chinese porcelains and cloth.

Historical records provide evidence suggesting that around 1860 coastal raja on Seram had “divided” the mountain dwellers between themselves, supplying them prestige items in return for sago, tobacco, woven cloths, plaited mats, and *damar* resin. Other items that were noted to be in circulation between the islands of central Maluku, Seram in particular, and the Bird’s Head region of Irian Jaya include various textiles, iron or sword blades, gongs, powder, fire arms, opium, and glass beads.

Elmberg notes that trade relations between eastern Seram and western New Guinea were so extensive that during the 17th century the population of different islands of the Seram Laut group and some coastal villages of eastern Seram had discrete “sosolot” areas with exclusive trading rights on the Onin coast of western New Guinea (Elmberg 1968: 127).

In 1902, the raja in the villages of Ati-Ati, Rumbatti, and Patipi on the New Guinea coast still did not speak the local language, instead speaking Seramese as their mother tongue (Elmberg 1968: 129). A number of other villages were bilingual and “Seramese” colonies were reported in a great many villages outside Ati-Ati, Onin, Rumbatti, and Patipi (Elmberg 1968: 129).

However, not included in these accounts of trade relations between indigenous foragers and coastal communities is whether the inland peoples entered into these exchange relationships willingly or whether they were induced by force. We discuss this issue further in the next section.

Malukan foragers as political subordinates

There is a wealth of evidence suggesting that indigenous foragers in Maluku were forced into exchange relationships as political subordinates. Andaya’s (1993: 65) earlier example suggests that Alifuru groups on Halmahera carried out a form of “corvée” labor on the coastal lands ruled by the Sultans of Ternate and Tidore. By providing forest resources as

well as cloves to the Sultans, the Alifuru peoples were likely paying tribute in order to live and work on the lands.

On the island of Ambon, smaller settlements that were politically controlled by Hitu provided tribute in the form of cloves, wood, and other products such as sago (Ellen 1979: 63). Meilink-Roelofsky (1962: 60) notes that many varieties of wood were paid by client villages to Hitu on Ambon island as part of their tribute. Tribute from other areas of Ambon likely included other forest products such as *damar* resin, meat, and wild nuts.

Ellen notes that for many centuries the highland people of Seram have been linked to political and trade centers through the extraction and exchange of small quantities of certain high-value forest resources. These have altered from time to time, but have included *damar* resin, bird plumes, and wild nutmegs. These products may also have entered into extensive trade networks as tribute to political centers such as Hitu, or even trade centers on the southern coast of Irian Jaya. However, the extent to which tribute payments represented a dominant-subordinate relation based on coercive force is difficult to assess. Some groups may have actively entered into a tribute payment relationship in order to access products available in more extensive trade networks, to participate in a larger political sphere, and to acquire various forms of “protection.”

As mentioned above, historical accounts shed some light on the role and status of indigenous forager groups in the early Maluku economy. There is evidence to suggest that their role has been complex and multifocal. Each individual had to contend with a wide range of both indigenous and foreign ideologies, modes of behavior, and protocol concerning interrelations with outsiders and those within the local community. The potential for this multiplicity of influences generating variability in the roles and responses of different communities and individuals within the Maluku economy is staggering, to say the least (cf. Barth 1993). However, a high degree of cultural flexibility seems to have been an adaptive response and, in a unique way, characterizes many aspects of Malukan culture.

Before one could even hope to reach this level of understanding, many fundamental questions remain unanswered concerning the role of indigenous Maluku foragers in prehistoric and protohistoric times. In the following section we attempt to shed light on this issue with the archaeological evidence recovered from the Batususu Rockshelter of northern

Ambon in relation to Ellen's model of the Elementary Moluccan Subsistence Unit. We will discuss expected patterns from the archaeological record of northern Ambon and compare the data with Ellen's model discussed above.

Archaeological correlates of the Elementary Moluccan Subsistence Unit

In presenting the archaeological correlates of the Elementary Moluccan Subsistence Unit, we must remind the reader that the occupation period represented by the Batususu Rockshelter (roughly A.D. 1100 to 1650) is not long enough to fully evaluate all phases in Ellen's model. For this reason, we will focus on the Early and Formative Exchange Periods, which are likely to be more contemporaneous with the Batususu occupation period.

The Early Exchange Period: Expected patterns

According to Ellen, the Early Period is characterized by simple relations of production associated with the Elementary Moluccan Subsistence Unit. During this phase, small amounts of spices are collected and exchanged for various material items, including valuables but excluding food. Based on the model, we should expect the following evidence in the archaeological record:

- (1) Evidence of clove and nutmeg exploitation
- (2) The presence of nonfood trade items (pottery, metals)
- (3) Remains of local food items (faunal, botanical)

The Formative Exchange Period: Expected patterns

As mentioned earlier, Ellen states that the Formative Exchange Phase is recognized by an upswing in the level of production and the full domestication of spice trees. Trade becomes of increasing political importance to both producers and traders. Finally, increasing control over a greater volume of commodities forms a growth-point for the beginnings of class differentiation. Based on Ellen's discussion, we should expect the following evidence in the archaeological record:

- (1) Evidence of increased exploitation of spices (e.g., a larger proportion of clove and nutmeg remains in relation to other resources)
- (2) Increase in the proportion of nonfood trade items
- (3) Presence of wealth and/or prestige items
- (4) Decrease in the proportion of local food resources

Test of the model

In regard to the expected patterns for the Early Exchange Period, there are no clove or nutmeg remains present in the early occupation levels at the Batususu Rockshelter dating to A.D. 1100. Three ceramic sherds were uncovered that date to this time period. Based on similarities in decoration and temper with ceramics from adjacent islands, there is the possibility that these sherds may have been trade items. As shown in Table 2, there are abundant remains of local food items that consist mainly of marine shells and *Canarium indicum* nut. This evidence supports Ellen's model of the Early Exchange Period, which calls for a significant amount of remains from local, nondomesticated food items.

Table 2. Major food resource species found at Batususu Rockshelter, early levels

SPECIES	CLASS	HABITAT
<i>Canarium indicum</i>	botanical	terrestrial
<i>Collisella striata</i>	gastropod	intertidal
<i>Nerita polita</i>	gastropod	intertidal
<i>Rhonoclavus vertagus</i>	gastropod	shallow water

There is similar patterning in the data from the Early and Formative Exchange Periods. There are no clove or nutmeg remains present in the later occupation layers dating to the 17th century. On the other hand, there is an increase in the number of ceramic sherds, some which are decorated. It is possible that some of these sherds represent trade items acquired from adjacent islands, although Spriggs and Miller (1979) provide evidence of pottery manufacturing in the nearby village of Morella until quite recently. Initial analysis shows that the ceramic sherds are similar, in many respects, both to those in other localities of northern Ambon and to the nearby islands of Saparua and Haruku (Ellen & Glover 1974: 355, Stark & Latinis 1992: 76).

There are no data available to test for the beginnings of social ranking among Batususu individuals, since there are no unquestionable prestige or wealth items present. Table 3 illustrates a continued reliance on local food resources during the latest period of occupation dating to the 17th century. This pattern runs counter to that expected from Ellen's model, which suggests an increase in the proportion of spice remains and a decrease in remains from local food sources.

Table 3. Major food resource species found in 17th-century levels at Batususu Rockshelter

SPECIES	CLASS	HABITAT
<i>Canarium indicum</i>	botanical	terrestrial
<i>Canarium lamii</i>	botanical	terrestrial
<i>Pangium edule</i>	botanical	terrestrial
<i>Diospyros</i> sp.	botanical	terrestrial
<i>Heliocarionidae</i>	gastropod	terrestrial
<i>Nerita polita</i>	gastropod	intertidal
<i>Melancides torulosa</i>	gastropod	river mouth

Test results

Although the previous analysis provides some interesting results, the data are inadequate to provide a thorough test of Ellen's model of the Elementary Moluccan Subsistence Unit. Some expected patterns derived from the model did match the archaeological data. However, the test results remain inconclusive in many respects. Nevertheless, we wish to emphasize that data from the archaeological record may be useful for testing models proposed by Ellen and others. It is noteworthy that, although Ellen suggests that clove and nutmeg should be present, no spice remains were found in any level from the Batususu Rockshelter. A potential explanation for this is provided in the following discussion.

Ceramics that were uncovered throughout the Batususu occupation layers may represent potential trade items. Decorative patterns on both neck and rim sherds suggest possible connections with adjacent islands in the region, although it is possible that ceramics were made locally. Because wealth or prestige items were not found at the Batususu Rockshelter, it is not possible to confirm the beginnings of social ranking or status differentiation among the Batususu peoples. However, Chinese porcelains were recovered from surface deposits in the Kapahaha area located further up the mountainside. This may be a potentially useful area for further testing, although the relationship between the Kapahaha occupation and the Batususu period currently remains unknown.

Local marine shell and botanical remains were present throughout the site. *Canarium indicum* nut is clearly the dominant food species in all layers dating from A.D. 1100 to the 17th century. In addition to *Canarium indicum*, large, unmodified pounding tools made from locally available materials such as limestone, granite, quartzite, and basalt were the

dominant tool type at the Batususu Rockshelter. Table 4 illustrates the range of tool types present in each occupation layer.

Table 4. Range of tool types found in each layer at Batususu Rockshelter

TYPE	UNIT 2		UNIT 3		UNIT 4		TOTAL	
	NO.	%	NO.	%	NO.	%	NO.	%
Pounder	6	26.1	7	41.2	5	31.3	18	32.1
Hammerstone	4	17.4	3	17.7	2	12.5	9	16.1
Chopper	2	8.7	2	11.3	0	0	4	7.1
Core	3	13.0	0	0	0	0	3	5.4
Anvil	2	8.7	2	11.8	1	6.3	5	8.9
Debitage	6	17.4	3	17.7	8	43.8	14	25.0
Total	23		17		16		56	

The presence of *Canarium* associated with large, unmodified pounding tools suggests that harvesting and processing of nuts were perhaps the dominant activities performed at the Batususu Rockshelter throughout its period of occupation. Thus, the Batususu site may represent a more specialized processing site rather than a permanent occupation site. However, general trends and patterns in subsistence are reflected in the assemblage. This information is useful for elucidating general trends and change in the overall economy.

Discussion

As mentioned in the previous section, it is important to remember that the Batususu Rockshelter data are too incomplete to provide a thorough test of Ellen's model of the Elementary Moluccan Subsistence Unit. Most of the significant social and economic developments discussed by Ellen probably occurred after extensive use of the Batususu Rockshelter site. It is quite likely that, with the exception of the latest levels, much of the Batususu Rockshelter occupation period may predate Ellen's Early Exchange Phase. However, this may better help to place portions of Ellen's model into a temporal framework.

In addition, the range of archaeological data recovered from the Batususu Rockshelter is insufficient to provide a thorough testing of Ellen's model. No definite prestige or wealth items were found to allow for an investigation into the beginnings of social ranking and status dif-

ferentiation in the area. More important, no spice remains were uncovered to provide a test of the relative importance of spice remains against those from local food sources. This represents an area that is crucial to Ellen's model.

Despite these limitations, the Batususu Rockshelter data provide evidence of interesting developments in the area with regard to the role of indigenous foragers. The lack of spice remains at the Batususu Rockshelter potentially does confirm Ellen's model in terms of forager groups playing a role subordinate to local political, spice-growing, and trading centers. Perhaps the major role of the Batususu peoples was to supply food to the nearby trade center of Hitu in northern Ambon. The Batususu Rockshelter may have been used as a site for the extraction and processing of forest resources such as *Canarium* nut and *damar* resin to be sent to Hitu as tribute. This would explain the lack of spice remains from the Batususu site. If clove and nutmeg were grown around Hitu, smaller satellite localities such as Batususu may have been used as areas for the collection of forest products for subsequent transportation to the coastal trade center.

Another important pattern in the data is the predominance of *Canarium indicum* nut at the Batususu Rockshelter. Apart from Ellen's (1988) description of *Canarium* nut processing among the Nuaulu of Seram, there is very little mention of this food source in historical accounts of the Maluku spice trade.

It is possible that one of the obligations of the Batususu peoples was to supply *Canarium* nut to the political center of Hitu. This may have been a response to periodic shortages of sago and other food sources that occurred in spice-trading centers such as Hitu. The Batususu foragers may have been integrated into the spice-trade network as suppliers of *Canarium indicum* nut to the dominant political centers.

It is also possible that *Canarium* nut processing played a much greater role in the early Maluku economy than previously thought. This pattern would be similar to that indicated by the predominance of *Canarium* nut remains in Lapita period sites throughout Island Melanesia and New Guinea (Yen 1993: 8). Yen states that abundant *Canarium* nut remains from many archaeological sites in the region, ranging from the Sepik-Ramu lowlands (Swadling et al. 1988), to the Mussau Island group (cf. Kirch 1989), to the eastern Solomon Islands, indicate its dominance as a

nut producer in the New Guinea islands beginning some 3000 to 6000 years ago.

As Yen has suggested (Yen 1990, pers. comm.), it is possible that a New Guinea-based, *Canarium*-dominant economy, in addition to sago and other tree crops, may have existed in areas of Maluku before the introduction of the spice trade. Based on the evidence from the Batususu Rockshelter, we would argue further that small pockets of forager groups, even on smaller islands such as Ambon, were able to continue their *Canarium*-dominated economy much later than previously thought.

This refers to the last, and most striking pattern, revealed by the data recovered from the Batususu Rockshelter. There appears to be no significant change in the economic activities carried out at the Batususu Rockshelter throughout its period of occupation, which ranges from around A.D. 1100 to the 17th century. *Canarium* remains the dominant food source, while large, unmodified pounding implements remain the dominant tool in every occupation level.

There are three possible explanations to account for the patterning in the archaeological data. First, as mentioned earlier, it is possible that much of the Batususu occupation predates the onset of the spice trade and the Early Exchange Phase of Ellen's model. Second, the Batususu foragers may have been linked to the spice trade as subordinates to the political center of Hitu and thus sent *Canarium* and other forest products either as tribute or as exchange items. The Batususu peoples may have also acquired their pottery through trade with other villages located on islands throughout central Maluku. Finally, the continuity in subsistence practices at the Batususu Rockshelter may suggest that the spice trade had no major effect on the economic practices of the Batususu foragers during this period of occupation. In this light, perhaps the Batususu locality represents a small pocket area in which traditional arboriculture, similar to that in the New Guinea region—dominated by the processing of *Canarium* nut and other tree crops such as sago—persisted much longer than previously thought. This scenario is similar to that described by Ellen for the highland-oriented economy of the Nuaulu of central Seram, which continued while major changes occurred within coastal trading villages in the region. This economic pattern may have continued at least until the spice trade and other major disruptions occurred, such as the "Ambon Wars," at which point major changes in the Ambonese way of life took hold forever.

Which of the three explanations is most correct can be answered only through further multidisciplinary research in the Maluku region. The research already carried out by Ellen and other scholars has pointed us in the right direction. However, much more work, especially in archaeology, needs to be conducted in order to address the many puzzles that remain unsolved.

Although limited in some respects, the Batususu Rockshelter data confirm many aspects of Ellen's model. In addition, the evidence from Batususu Rockshelter suggests that there are two important issues that have not received much attention in the literature. First, there appears to be a much greater emphasis on nut collecting, at least in northern Ambon, than is mentioned in earlier accounts. Second, there appears to be very little change in the organization of economic practices among the Batususu peoples from roughly A.D. 1100 to the 17th century.

NOTE

1. We wish to note that the abundance of sago palm and the wide distribution may allow for increased mobility as well. Sago palm provides a substantial starch contribution, is easily processed, and is seemingly ubiquitous in many of the central Malukan environments. Thus, foragers would not have to carry or provision heavy food supplies while conducting extended forays in the forest to collect and process other resources. In essence, a food supply is naturally available, although the current distribution of sago has likely had a human contribution throughout the past. Current ethnographic observations suggest that a relatively high degree of mobility is still practiced in some places throughout central Maluku. Certainly, many of the residents of Morella and Mammala were taking extended trips to the forest to collect a variety of forest resources during the research seasons in Ambon. Mobility practices in various parts of Seram appeared even more extensive.

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Figure 1. Bacanese *matakau* indicating a restricted area.

(Photo by L. Crowder, 1993)